## REMARKS

This case has been reviewed and analyzed in view of the Official Action dated 5 May 2004. The paragraphs below provide a detailed response to the rejected items and a description of the difference between the invention and the cited prior art.

1. **The Examiner rejected Claims 1 and 8 under 35 U.S.C. 103 (a) , as being unpatentable over Hiroshi JP 08-278966) in view of Chiang (US Patent No.6,154,758. The Examiner has stated:**

As the claim 1, Hiroshi teaches an auxiliary device for editing documents, comprising: a modular key set with a document editing function (See Fig. 1, items 5-7, in Detailed description See Page 2, paragraph 0009); the modular set being arranged on computer peripheral; generating a pseudo composite-key code corresponding to a key in the modular key set pressed by user (See Fig. 1, items 5-7,8-10, in Detailed description See Page 2, paragraph 0009); whereby the user can directly edit a document by using the modular key set provided on the computer peripheral without chording (See Figs. 1-4, items 5-7, 8-10, in Detailed description See Page 2-5, paragraph 0009-0032).

Chiang teaches a single chip microprocessor for converting display text from one format to another (See Fig.1, item 12, in description See Col.4, Lines 42-50). It would have been obvious to one of ordinary skill in the art at the time of invention use single chip microprocessor as shown by Chiang in the Hiroshi apparatus to connect the modular set to an I/O bus of single-chip microprocessor to generate a predetermined

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pseudo composite-key code in order to replace the selected text with a text from different text domain (see Col.3, line 10-11 in Chang reference).

**Response to Examiner's Point No. 1:**

As is well known in the art, standard keyboards include a delete key, and a cursor moving with the arrow directional keys. The user can use the mouse button/keyboard arrow keys in order to mark some items from a document and select an application toolbar for launching cut, paste, or copy functions. The delete key of the keyboard is able to delete some marked items from the document. However, there is often trouble in that the document edit processing system can cause errors and mistakes (refer to paragraph 0006) and the process is not user friendly.

The Hiroshi invention is provided with the hope that the document edit device can perform document editing processing with fewer errors.

The Hiroshi reference teaches adding one key and improves two key button functionality on the keyboard (such as adding a copy key and improving delete/moving key functions) for launching a different display form in the document. It can also help correct errors in document editing.

However, the Hiroshi invention can only be used with special document editing equipment and requires a special operation application software or driver for pop-up menus separate from those used with the document (refer to Claim 1, and drawings 4, 5, 6 and 7). Pressing the target delete, copy or moving keys cannot launch the target

function directly. Further processing steps are required (refer to paragraphs 0001, 0004, 0013, and drawings 4, 5, 6, and 7).

As the Examiner has stated, the Hiroshi reference does not show a computer peripheral having an internal circuit with a single-chip microprocessor and the modular key set is connected to a I/O bus of a single-chip microprocessor generating a predetermined pseudo-composite-key code. Because the Hiroshi invention was filed in 1995, no Windows® operating systems or Office application support is provided for the pseudo-composite-key code. So, the Hiroshi invention can only be used in special document editing devices or equipment and requires special operating systems and operation application software or driver support. The system cannot be used in a computer peripheral and launch functions such as cut, paste, copy, redo, undo, open, new, bold, safe, find, forward, send and other functions through a single press (as claimed in the present invention).

The Hiroshi reference teaches the adding of three key buttons on the keyboard (such as delete, copy and moving keys), with the key buttons having similar names to the invention's modular key, however, the technology and functionality are completely different. The Hiroshi system is similar to a "multimedia keyboard" shown in the background of the invention.

The Chiang invention is utilized for converting displayed text from one format to another. This reference discloses (as shown in Fig. 1, item 12, and column 4, lines 42 – 50) a CPU but not a single chip microprocessor, either of which is very common in

today's computers, but may be for respective functionality regardless of solely operating or in conjunction with other electrical devices. Therefore, forming a basis of rejection without differentiating the single chip microprocessor and CPU is not believed to be proper.

The Chiang invention can be used on pen-based computers such as a PDA (not a computer peripheral), therefore, the Chiang invention has a different purpose and function to the present invention and only shows a CPU (not a single chip microprocessor). The Chiang invention does not show any modular key connected to an I/O bus of single-chip microprocessor, and the CPU is not used for operation software and only senses the position/movement of the stylus (pen input). The Chiang reference fails to disclose modular key sets and pseudo-composite key tables. The mention of the subject Patent Application can arrange the modular key on the computer peripheral with the pseudo-composite-key code and does not require any complex software driver support. Further, this system is compatible with Window OS/Office applications and with capabilities to launch functions directly.

Thus, the combination of Hiroshi and Chiang cannot make obvious the invention of the subject Patent Application.

2.    The Examiner stated below:

The Paiolini teaches sending specific code to code-conversion software (See Fig. 2, item 240, in description See Col. 4, Lines 52-68 ) . It would have been obvious

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to one of ordinary skill in the art at the time of invention to send specific code to a code-conversion software as shown by Paolini in the Hiroshi and Chiang apparatus in order to provide the flexibility to modify individual key associations (See col. 3, Lines 15-16 in the Paolini reference). Paolini teaches that any key could be reprogram to any function on output character (See Fig. 2, item 260, in description See Col. 5, Lines 16-30). It would have been obvious to one of ordinary skill in the art at the time of invention to place the modular key set beside the Shift key on keyboard in the Paolini and Chiang apparatus in order to provide extra function on a keyboard (See Col. 2, Lines 38-41 in Paolini reference).

The Kraft teaches paste key out of modular set (See 2-3, 8, items 2-3, in description See Col. 4, Line 56-68 and Col. 5, Lines 1-12).


**Response to Examiner's Point No. 2:**

As is well known in the art, there are many different style computers selling in the present market. Most computers are bundled with a keyboard. However, the keyboard is only compatible with the target computer. For example, a standard PC PS2 keyboard cannot work on a Macintosh computer. The Paolini invention provides an extra adapter with the capability to transfer target keyboard standard scan codes and protocols to be compatible with different computers or equipment, thereby having multiple instances and some incompatible devices operating properly on the target system. The Paolini reference teaches a method for transferring key-by-key functions

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only. The Paolini invention requires an extra adapter that is built with complex hardware support (see Fig. 1, item 102 and the description in column 4, lines 31 – 39, showing that "the keyboard or mouse adapter 120 containing the I/O controller needs to issue interrupts in order to notify the microprocessor 102 of a state change of either the keyboard 140 or the mouse 145 ..."). The Paolini reference describes the I/O connects to the adapter other than the single chip microprocessor directly, and the microprocessor 102 thereof incorporates with the external memory and connects to the host/PCI bus, as shown in Figure 1, but the single chip microprocessor of the present application system has no external memory connected. The I/O lines are for transferring the data between the keyboard, mouse and adapter.

The Paolini reference (see Fig. 2, and column 3, line 60 and column 4, lines 52 – 68) shows a prior or previous method of input mapping for a keyboard. This system keys to key mapping or conversion and is vastly different from "the transfer specific code to a code-conversion software of the present application." Therefore, the Paolini invention can only reprogram key-by-key and is without the capability to place the modular key set (each key being built with pseudo-composite key code) beside the shift key on the keyboard.

The Paolini reference does not teach a single chip microprocessor (without external memory), an I/O bus connected to a module key set, a pseudo-composite key code table (one action for transferring of multi-key scan codes), and the computer

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peripheral device with capability to edit documents under Window OS/Office applications.

Column 1, lines 35 – 37 and column 2, lines 38 – 41, along with column 4, lines 53 – 68, in the Paolini reference only teach a standard keyboard scan key matrix method for generating scan codes. However, the subject Patent Application shows a modular key set and a pseudo-composite key code table. Thus, the subject matter and purpose of the present application and the Paolini reference are substantially different.

Additionally, the Kraft invention for cell phone is not directed towards computer peripherals. The hardware is completely different than that shown in the present subject Patent Application system and cannot operate on a computer. The Kraft reference has a paste item for selection and is controlled by software along with a software key and the design method is completely different from that of the present application. Thus, the combination of Hiroshi, Chiang and Kraft cannot make obvious the invention of the subject Patent Application.

3. **The Examiner stated below:**

Krause et al. teaches shortcut keys which automatically advance the text displays (See Fig. 4B, item 447, in description See Col. 10, Lines 33-39). It would have been obvious to one of ordinary skill in the art at the time of invention to implement short-cut key as shown by Krause et al. in the Hiroshi and Chiang apparatus in order to

enhanced a user ability for moving around with a text (See Col. 1, Lines 24-29 in

Krause et al. reference).

### Response to Examiner's Point 3:

The Krause invention is for software only and all related functions are software

keys. The design purpose, design method, hardware and software are completely

different than that shown in the present subject Patent Application. The Krause

reference teaches one software application, allowing users to define the short-cut keys.

through an opening in a dialog box. In the Krause reference, users have to remember

the software short-cut key definitions, or they are unable to use the short-cut keys. The

Krause reference shows the short-cut key redefinition only and all software key

functions require some other device for selection (such as a mouse click). Originally

filed Claims 2 and 24 of the subject Patent Application show a real physical short-cut

key for launching an associated program. The present invention further provides an

auxiliary device for editing a document, wherein the user can perform a specific

function by pressing only one (modular) key without pressing (holding) several keys at

the same time. The originally filed Patent Application focuses on a one-touch

(modular) key to have specific functions which require several key strokes in a

successive manner, as mentioned in the prior art as being accomplished with "one-

strike" action, rendering the rejection of Claims 2 and 24 improper.

**4.   The Examiner stated below:**

Hsu et al. teach switch key (symbol key) with LED (for Scroll Lock key)and a

plurality of composite keys and the functions of the composite keys controlled by a

switch key (See Fig. 1-2, item 15-26, in description See Col. 3, Line 37 and Col. 4,

Lines 58-67, Col. 5, Lines 58-68).

It would have been obvious to one of ordinary skill in the art at the time of

invention to implement switch key to modify composite keys for redo, undo, bold,

open, new, save, find, forward and function keys F1-F12 as shown by Hsu et al. in the

Hiroshi and Chiang apparatus to use predetermined pseudo composite-key code of

modular key set in order to switch a plurality of switchable keys between a first key

code set and second key code set with a single modifier key (See Col. 2, Lines 17-20 in

Hsu et al. reference).


**Response to Examiner's Point No. 4:**

The Hsu reference, U.S. Patent No. 6,320,519, was filed on October 21, 1998.

The same inventor as the present application, "Rich Chen" filed a similar patent on

April 3, 1997 (Patent No. 6,011,495 for a multimedia keyboard structure) and it is noted

that this was before the Hsu reference.

The Hsu reference uses a standard modified key set including control, shift and

alt in order to control dual function keys, however, the Rich Chen reference uses a

standard key including Scroll Lock keys or Num lock keys for controlling dual function

keys. Dual function keys built with the standard key function and hot key function (as a multimedia function). The multimedia function includes CDs, video, fast forward/rewind, volume up/down, mute, www, e-mail, etc. (see column 5, lines 58 – 68 in Hsu). The multimedia technology and problems thereof are shown in the background invention of the present application. The Hsu reference and the Rich Chen reference patent are without a modular key set for generating pseudo-composite-key codes and do not have the capability to control application internal functions, such as cut, paste, copy, new, open, save, reply, send, undo, redo, etc.

However, in order to use the standard key or modified keys for control lead to some "lead to malfunctions" and other indicator problems. Thus, the present application adds an extra switch and light element.

The Hsu reference teaches one of the switch keys, such as the "alt, control, shift" being first pressed and held in combination with a pressed modifiable key, which can be a function key, a character key or a symbol key, etc. (See Fig. 2, column 4, lines 58 – 67 in the Hsu reference). However, the Hsu reference only allows the combination interrupts in an action in DOS (not in a Windows Operation System/application). Otherwise, this leads to "lead to malfunctions" problems. The Hsu reference further requires the pressing of one key, then the pressing of another key (two keys pressed) for launching DOS functions. The end-user is required to memorize the combination keys.

The originally filed application builds with additional extra switch and light-emitting elements. Thus, it is easy to show indicator status. This can be put on a device

or on the screen. U.S. Patent No. 6,320,519 uses keyboard 3 with a standard LED for indicator status, which may confuse the user. As is well known, the three standard LEDs built on the keyboard are controlled by the Windows Operating System. The Windows Operating System remembers and updates the status anytime. In use, the wrong status is sometimes generated, such as when the user turns off the Caps Lock LED indicator, but presses the modifier key later for switch function and status. This turn on/off the Caps Lock LED for showing the function status. However, if the user types a letter, it will show the wrong upper case or lower case.

In the system of the subject Patent Application, an extra switch key 3 (labeled OFFICE KEY LOCK) is utilized to switch the functions of the modifiable keys (function keys F1 – F 12). The adding of the extra light-emitting element is used for showing status. Thus, in the invention shown in the subject Patent Application, only the desired key codes are transmitted in order to avoid any possibility of software incompatibility.

For all the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.
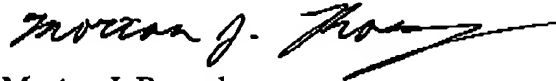
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It is respectfully noted that this Amendment and response was prepared by Applicant and has been corrected only for format, grammar, and idiomatic and translational form. The Amendment and response prepared by the Applicant is being filed by the undersigned attorney.

Respectfully submitted,
For: ROSENBERG, KLEIN & LEE

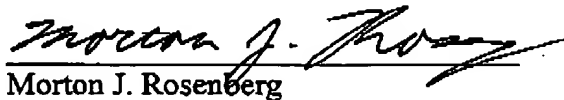Morton J. Rosenberg
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